

IFT injection frequency distributions

SM Shane G McNally SCD Scott C. Dawson

Updated date: Jun 4, 2020

 An abbreviated version of this protocol was published in eLIFE in Dec 2019

Length-dependent disassembly maintains four different flagellar lengths in *Giardia*

DOI: 10.7554/eLife.48694

Detailed protocol

IFT injection frequency distributions

Requirements:

Python 3.X

KymographClear 2.0 ImageJ plugin

Kymograph Direct

- 1) Generate forward filtered kymographs from live imaging of fluorescently labelled IFT components using KymographClear 2.0 (<https://sites.google.com/site/kymographanalysis/>).
- 2) Import kymographs into Kymograph Direct (<https://sites.google.com/site/kymographanalysis/>) to automatically detect trajectories. Save 'Particle Coordinates' of the detected trajectories as a txt file.
- 3) Calculate the time lag between trajectories using: "Kymodata_analysis_allparticles_deltaT_calc_AF_CF_antero_F4.py" (https://github.com/shanemc11/Giardia_Flagella/blob/master/Kymodata_analysis_allparticles_deltaT_calc_AF_CF_antero_F4.py) and save the timelag data to a csv file.
- 4) Run: "Kymodata_analysis_allparticles_frequency_distributions_curvefitting_AF_PF_CF_antero_F4.py" (https://github.com/shanemc11/Giardia_Flagella/blob/master/Kymodata_analysis_allparticles_frequency_distributions_curvefitting_AF_PF_CF_antero_F4.py) to fit the calculated time lags to a single exponential and output the time constant and other parameters.

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. McNally, S. and Dawson, S. C.(2020). IFT injection frequency distributions. Bio-protocol Preprint. bio-protocol.org/prep336.
2. McNally, S. G., Kondev, J. and Dawson, S. C.(2019). Length-dependent disassembly maintains four different flagellar lengths in *Giardia*. eLIFE. DOI: [10.7554/eLife.48694](https://doi.org/10.7554/eLife.48694)

Copyright: Content may be subjected to copyright.